

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference <b>P70625PC00</b>	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. <b>PCT/EP2005/051591</b>	International filing date ( <i>day/month/year</i> ) <b>11 April 2005 (11.04.2005)</b>	Priority date ( <i>day/month/year</i> ) <b>09 April 2004 (09.04.2004)</b>
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant <b>O'BRIEN, Conor</b>		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 8 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input checked="" type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 338 82 70	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Date of issuance of this report 11 October 2006 (11.10.2006)</td> </tr> <tr> <td style="padding: 2px;">Authorized officer  <div style="text-align: center; font-weight: bold;">Yolaine Cussac</div></td> </tr> <tr> <td style="padding: 2px;">e-mail: pt11@wipo.int</td> </tr> </table>	Date of issuance of this report 11 October 2006 (11.10.2006)	Authorized officer  <div style="text-align: center; font-weight: bold;">Yolaine Cussac</div>	e-mail: pt11@wipo.int
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e-mail: pt11@wipo.int				

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 30 NOV 2005

PCT  
WIPO PCT

To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/EP2005/051591

International filing date (day/month/year)  
11.04.2005

Priority date (day/month/year)  
09.04.2004

International Patent Classification (IPC) or both national classification and IPC  
A63B24/00, A63B69/00, G01C22/00

Applicant  
O'BRIEN, Conor

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas  
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl  
Fax: +31 70 340 - 3016

Authorized Officer

Michels, N

Telephone No. +31 70 340-4025



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2005/051591

**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the International application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/EP2005/051591

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**Box No. V Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	1-14
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**Re Item V.**

- 1 Reference is made to the following documents:

D1 : US 6 013 007 A (ROOT ET AL) 11 January 2000 (2000-01-11)

- 2 Document D1, which is considered to represent the most relevant state of the art, discloses (see column 6, line 63 - column 8, line 21, figures 6, 10, 11):

a device for measuring the performance of a subject, the device comprising input means for receiving a measurement of distance travelled by a user in a given time, a processor for calculating parameters from these measurement data, and output means for outputting a measure of an exercise level to a user.

From this, the subject-matter of independent claim 1 differs in that:

the processor determines from said values of distance and time an aerobic capacity; and that  
the measure of the exercise level is based on the calculated aerobic capacity, wherein the aerobic capacity conforms to the relationship expressed as:

$$VO_{2max} = a + bx + c(x^2)$$

wherein  $VO_{2max}$  is the maximal oxygen consumption of a user, wherein a, b and c are non-zero constants, and wherein x is a measure of distance per unit time.

- 2.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as to determine exercise levels independent from the heart rate of a user.

- 2.2 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following

reasons. The device calculates the aerobic capacity of the user from a distance travelled by a user in a given time by applying the formula

$$VO2max = a + bx + c(x^2)$$

wherein VO2max is the maximal oxygen consumption of a user, wherein a, b and c are non-zero constants, and wherein x is a measure of distance per unit time. This value of the aerobic capacity is set as parameter of a maximal exercise level to be achieved by the user and the actual exercise level of a user is determined and displayed to a user in function of this maximal exercise level.

In D1 neither the solution of claim 1 is indicated to monitor the exercise level in relation to the aerobic capacity in dependance to the above mentioned formula, nor is a hint given pointing to the solution.

2.3 Claims 2-5 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

3 Corresponding independent claims 6 and 7 are related to a method for measuring the aerobic capacity and to a computer program product to enable a computer to measure the aerobic capacity. Therefore, the same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 6 and 7, which therefore is also considered not to be inventive (Article 33(3)PCT).

4 Claim 8 is dependent on claim 7 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

5 Document D1, which is considered to represent the most relevant state of the art, discloses (see column 6, line 63 - column 8, line 21, figures 6, 10, 11):

a system for measuring an exercise level of a user, the system comprising a global positioning system (GPS) module for measuring a geographical location of a user or a speed of a user, and a mobile telecommunications device having

an active communication link, in use, with the GPS module, the mobile telecommunications device being updated regularly with the position of or speed of the GPS module, and the mobile telecommunications device being provided with computer program means for calculating, from said position or speed, an exercise level.

The subject-matter of claim 9 therefore differs from D1 in that the exercise level of the user is calculated in terms of aerobic capacity.

5.1 The subject-matter of claim 9 is therefore novel (Article 33(2) PCT).

The problem to be solved by the invention according to claim 9 may therefore be regarded as to provide an actual exercise level expressed in proportion to the aerobic capacity independently from the heart rate of a user.

5.2 The solution to this problem proposed in claim 9 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons. The device calculates the aerobic capacity of the user from a distance travelled by a user in a given time by applying the formula

$$VO_{2max} = a + bx + c(x^2)$$

wherein  $VO_{2max}$  is the maximal oxygen consumption of a user, wherein  $a$ ,  $b$  and  $c$  are non-zero constants, and wherein  $x$  is a measure of distance per unit time.

This value of the aerobic capacity is set as parameter of a maximal exercise level to be achieved by the user and the actual exercise level of a user is determined and displayed to a user in function of this maximal exercise level.

In D1 neither the solution of claim 9 is indicated to monitor the exercise level in relation to the aerobic capacity in dependance to the above mentioned formula, nor is a hint given pointing to the solution.

5.3 Claims 10 - 12 are dependent on claim 9 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2005/051591

- 6 Corresponding independent claims 13 and 14 are related to a method for measuring an exercise level and to a computer program product to enable a computer to measure an exercise level. Therefore, the same reasoning applies, *mutatis mutandis*, to the subject-matter of the corresponding independent claims 6 and 7, which therefore is also considered not to be inventive (Article 33(3)PCT).

**Re Item VII**

Certain defects in the international application

- 1 Independent claims 1, 6, 7, 9, 13 and 14 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 2 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.